

Docket No.: PF-0610 USN

IN THE CLAIMS

This listing of the claims replaces all prior versions of the claims in the application. Note that claims 1-30 have been canceled, without prejudice or disclaimer, and substituted with new claims 31-.

1.-30. (Canceled)

31. (New) An isolated polypeptide selected from the group consisting of:

- a) a polypeptide comprising the amino acid sequence of SEQ ID NO:14,
- b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO:14, said polypeptide having pyrroline-5-carboxylate reductase activity,
- c) a polypeptide comprising a polypeptide fragment, wherein the polypeptide fragment is a fragment of the amino acid sequence of SEQ ID NO:14, said polypeptide fragment having pyrroline-5-carboxylate reductase activity, and
- d) a polypeptide comprising an immunogenic fragment, wherein the immunogenic fragment comprises at least 10 contiguous amino acid residues of the amino acid sequence of SEQ ID NO:14.

32. (New) An isolated polypeptide of claim 31, comprising the amino acid sequence of SEQ ID NO:14.

33. (New) An isolated polynucleotide encoding a polypeptide of claim 31.

34. (New) An isolated polynucleotide encoding a polypeptide of claim 32.

35. (New) An isolated polynucleotide of claim 34, having the sequence of SEQ ID NO:29.

Docket No.: PF-0610 USN

36. (New) A recombinant polynucleotide comprising a promoter sequence operably linked to a polynucleotide of claim 33.

37. (New) A cell transformed with a recombinant polynucleotide of claim 36.

38. (New) An isolated polynucleotide selected from the group consisting of:

- a) a polynucleotide comprising the polynucleotide sequence of SEQ ID NO:29,
- b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to the polynucleotide sequence of SEQ ID NO:29 encoding a polypeptide having pyrroline-5-carboxylate reductase activity,
- c) a polynucleotide comprising a polynucleotide sequence encoding a polypeptide fragment of SEQ ID NO:14 having pyrroline-5-carboxylate reductase activity,
- d) a polynucleotide complementary to the polynucleotide of a),
- e) a polynucleotide complementary to the polynucleotide of b), and
- f) a polynucleotide complementary to the polynucleotide of c), and
- g) an RNA equivalent of a)-f).

39. (New) A method for detecting a target polynucleotide in a sample, the target polynucleotide having a sequence of a polynucleotide of claim 38, the method comprising:

- a) hybridizing the sample with a probe comprising at least 20 contiguous nucleotides comprising a sequence complementary to the target polynucleotide in the sample, and which probe specifically hybridizes to the target polynucleotide, under conditions whereby a hybridization complex is formed between the probe and the target polynucleotide or fragments thereof; and
- b) detecting the presence of the hybridization complex, wherein the presence of the hybridization complex correlates with the presence of the target polynucleotide in the sample.

Docket No.: PF-0610 USN

40. (New) A method of detecting a target polynucleotide in a sample, the target polynucleotide having a sequence of a polynucleotide of claim 38, the method comprising:

- a) amplifying the target polynucleotide or fragment thereof using polymerase chain reaction amplification, and
- b) detecting the presence or absence of the amplified target polynucleotide or fragment thereof, and, optionally, if present, the amount thereof.

41. (New) A method for producing a polypeptide encoded by a polynucleotide of claim 38, the method comprising:

- a) culturing a cell under conditions suitable for expression of the polypeptide, wherein the cell is transformed with a recombinant polynucleotide, and the recombinant polynucleotide comprises a promoter sequence operably linked to a polynucleotide of claim 38; and
- b) recovering the polypeptide so expressed.

42. (New) A method of screening a compound for effectiveness in altering expression of a target polynucleotide, wherein the target polynucleotide comprises a sequence of claim 38, the method comprising:

- a) exposing a sample comprising the target polynucleotide to a compound, under conditions suitable for the expression of the target polynucleotide,
- b) detecting altered expression of the target polynucleotide, and
- c) comparing the expression of the target polynucleotide in the presence of varying amounts of the compound and in the absence of the compound.

43. (New) A method of assessing toxicity of a test compound, the method comprising:

- a) treating a biological sample containing nucleic acids with the test compound,
- b) hybridizing the nucleic acids of the treated biological sample with a probe comprising at least 20 contiguous nucleotides of a polynucleotide of claim 38 under conditions whereby a specific hybridization complex is formed between the probe and a target polynucleotide in the biological sample,

Docket No.: PF-0610 USN

the target polynucleotide comprising a polynucleotide sequence of a polynucleotide of ~~claim 9~~ claim 26 or fragment thereof,

- c) quantifying the amount of hybridization complex, and
- d) comparing the amount of hybridization complex in the treated biological sample with the amount of hybridization complex in an untreated biological sample, wherein a difference in the amount of hybridization complex in the treated biological sample indicates potential toxicity of the test compound.

44. (New) A method of screening for a compound that modulates the activity of the polypeptide of claim 31, the method comprising:

- a) combining the polypeptide of claim 1 with at least one test compound under conditions permissive for the activity of the polypeptide of claim 31,
- b) assessing the activity of the polypeptide of claim 31 in the presence of the test compound, and
- c) comparing the activity of the polypeptide of claim 1 in the presence of the test compound with the activity of the polypeptide of claim 31 in the absence of the test compound, wherein a change in the activity of the polypeptide of claim 31 in the presence of the test compound is indicative of a compound that modulates the activity of the polypeptide of claim 31.